Engineering Fundamentals: Computational Biomedical Systems Analysis:

Use this list of engineering courses to fulfill your engineering fundamentals within this track. Courses are chosen with the assistance of the student's advisor, with final approval by the Graduate Committee.

Required Engineering *(1 of the following):*

- BMED 6780: Medical Image Processing
- BMED 6786: Medical Imaging Systems
- CHBE 6120: Molecular Modeling
- CHBE 6500: Math Model-Chem Process
- CSE 6140: Computational Science & Engineering Algorithms
- CSE 6730: Modeling & Simulation: Fundamentals & Implementation
- CSE 6740: Computational Data Analysis
- ECE 6250: Advanced Digital Signal Processing
- ECE 6435: Neuro Analog VLSI Ckts
- ECE 6500: Fourier Tech & Signal Analysis
- ECE 6550: Linear Systems & Controls
- ECE 7251: Detection & Estimation
- ISYE 6401: Stat Models & Dsgn Expts
- ISYE 6402: Time Series Analysis
- ME 6105: Modeling & Simulation-Design
- ME 6401: Linear Control System

Other Required *(1 of the following):*

- BMED 6700: Biostatistics (if not available then ISYE 6420)
- BMED 7413: Biochemical Systems Analysis
- BMED 7610: Quantitative Neuroscience
- BMED 6760: Information Processing Models in Neural Systems
- BMED 8823: Bioinformatics
- IBS 534: Computational Neuroscience

Other recommended engineering *(any of the above courses or those listed below)*:

- BIOL 8802: Computational Systems Biology
- BIOL 8803: Computational Genomics
- BMED 6041: Analytical Methods
- BMED 6700: Biostatistics
- BMED 6780: Medical Image Processing
- BMED 6782: Cellular Engineering
- BMED 6786: Medical Imaging Systems
- BMED 8823: Bioinformatics
- CHBE 6120: Molecular Modeling
- CHBE 6300: Kinetics & Reactor Design
- CHBE 6500: Math Model-Chem Process
- CHBE 6760: Biocatalysis

- CSE 6140: Computational Science & Engineering Algorithms
- CSE 6230: High Performance Parallel Computing
- CSE 6730: Modeling & Simulation: Fundamentals & Implementation
- CSE 6740: Computational Data Analysis
- CS 6505: Computability & Algorithms
- CS 6520: Computational Complexity
- CS 6550: Design & Analysis of Algorithms
- ECE 6250: Signal Processing
- ECE 6121: Combinatorial Strategies
- ECE 6254: Stat Digit Sig Proc & Mod
- ECE 6500: Fourier Tech & Signal Analysis
- ECE 6552: Nonlinear Systems
- ECE 6553: Optimal Control
- ECE 6554: Adaptive Control
- ECE 6556: Intelligent Control
- ECE 6558: Stochastic Systems
- ECE 6605: Information Theory
- ECE 6730: Model & Sim: Found & Implementation
- ISYE 6401: Stat Models & Dsgn Expts
- ISYE 6402: Time Series Analysis
- ISYE 6413: Dsgn & Analys-Experiments
- ISYE 6414: Regression Analysis
- ISYE 6416: Computational Statistics
- ISYE 6644: Simulation
- ISYE 6650: Probabilistic Models
- ISYE 6739: Statistical Methods
- MATH 6266: Linear Statistical Models
- MATH 6267: Multivariate Statistical Analysis
- MATH 6640: Numerical Methods: Partial Differential Equations
- MATH 6643: Numerical Methods: Linear Algebra
- MATH 6644: Numerical Methods: Systems of Equations
- MATH 6646: Numerical Methods: Ordinary Differential Equations
- MATH 6647: Numerical Methods for Dynamical Systems
- MATH 6705: Modeling & Dynamics
- MATH 6761: Stochastic Processes I
- MATH 6762: Stochastic Processes II
- ME 6105: Modeling & Simulation-Design
- ME 6401: Linear Control System
- ME 6402: Nonlinear Control System
- ME 6443: Variational Methods
- ME 6444: Nonlinear Systems